

ET

EINSTEIN
TELESCOPE



Preparation of INFRA-DEV Horizon Proposal for ET

M. Martínez
WP Coordinators Meeting

12th November 2021

News and random notes

- **Two important sessions next week**

- Nov 15th morning meeting with ESFRI officials on INFRA-DEV preparation
- Nov 19th Meeting with ESFRI officials on ET ESFRI proposals and recommendations

→ I will report the main points to you

- **Initiating the discussion on budget allocation**

- **Will work at the moment in an scenario with 3M€ + 20%**
- Needs input from agencies on in-kind contributions
- Needs input from WPs on needs

- I anticipate the INFRA-DEV funding will be focused on those subjects more relevant for the call
(no homogenous across WP)

Your input needed

Input Text for INFRA-DEV application for ET

[YOUR WP NUMBER HERE]

Please copy this template and work on it offline

PART B

In order to prepare part B we need to collect input from each of the WPs.

There is a fundamental limitation of 30 pages for the whole part B document including tables.

For what concern tables, we need to make sure that first we have sensible objectives and deliverables for each WP and we need to contain the # of deliverables

Consider font arial 11pt and the number of characters below includes spaces.

Every work package should provide the following texts.

Please refer to the example to learn about the content of each part.

1. Excellence

1.1 Objectives (600 c, 12 lines)

1.2 Coordination and/or support measures and methodology (2000 c, 30 lines)

2. Impact

2.1 Project's pathways towards impact (1300 c, 20 lines)

2.2 Measures to maximise impact - Dissemination, exploitation and communication (1300 c, 20 lines)

2.3 Summary [$\frac{1}{2}$ page taken care directly by WP1]

ANSWERS TO ESFRI RECOMMENDATIONS

Please edit this file in parallel

R1. It is recommended to assess the expected physics performance of the ET for different failure scenarios where the detector could not achieve designed performances and to develop mitigation plans. In the event that the funding does not proceed as planned or the cost of the detector increases, it might become necessary to set a priority in the physics programme and to descope the detector. The collaboration should be prepared for such processes. **(WP6)**

Yours answer here

R2. It is recommended to make sure that contributions by the industries are directly and visibly acknowledged, providing ET industry awards for example. It will be also useful to keep record of the impact made by the ET project in boosting the economy and improving society locally, in Europe and globally. **(WP 5, 8)**

Yours answer here

R3. No detail is given about the difference between the released data and sub-threshold data, and about how this specific access to data will be organised and granted. This should be better elaborated to ensure a fair process, and if for instance some tools or data are kept inside the collaboration this should be explained. **(WP 6, 9)**

Kind reminder you need to deliver some input for part B

→ Tentative deadline Monday 15th

Tables

In part 3.1 there are a number of tables to be filled up (consult the example in the INDICO). **It is important we fix the WP objectives, deliverables now**

Table 3.1a: List of work packages

Work package No	Work Package Title	Lead Participant No	Lead Participant Short Name	Person-Months	Start Month	End month
				Total person-months		

Table 3.1b: Work package description

For each work package:

Work package number	Lead beneficiary					
Work package title						
Participant number						
Short name of participant						
Person months per participant:	NOW					
Start month				End month		

Table 3.1c: List of Deliverables²

Only include deliverables that you consider essential for effective project monitoring.

Deliverable (number)	Deliverable name	Work package number	Short name of lead participant	Type	Dissemination level	Delivery date (in months)
				NOW		

Table 3.1d: List of milestones

Milestone number	Milestone name	Related work package(s)	Due date (in month)	Means of verification
				Then this

Table 3.1e: Critical risks for implementation

Description of risk (Indicate level of (i) likelihood, and (ii) severity: Low/Medium/High)	Work package(s) involved	Proposed risk-mitigation measures
		Then this

I will take care of filling up the tables properly for which I will be asking you input

Reports from WPs

- **WP1 Coordination and Management**
- **WP2 Organization, Governance and Legal Aspects**
- **WP3 Financial Architecture**
- **WP4 Site Selection**
- **WP5 Project Office**
- **WP6 Technical Design**
- **WP7 Transfer of Technology**
- **WP8 Computing and Data Access**
- **WP9 Sustainable Development Strategy**
- **WP10 Education, Outreach and Citizen Engagement**

Items for next week

- Provide inputs to part B
 - Provide list of observables and deliverables
 - Determine participants on each WP
(do you need to run kick-off meetings?)
 - Defend the needs for INFRA-DEV funding
- Longer meeting next week on Friday 19th

On budget

WP	Lead participant	Existing person months	Required person months	Duration 36 months	In-kind (k€)	total cost (k€)	Required (k€)
WP1							
WP2							
WP3							
WP4							
WP5							
WP6							
WP7							
WP8							
WP9							
WP10							

Let's discuss

Goals of the INFRA-DEV Initiative

In this respect, proposals should address all following aspects:

- the development of legal and financial frameworks/plans relating to the setting-up, construction and/or integration of national resources, operation and decommissioning of the research infrastructure as well as its Governance structure; the complementarities between national and EU instruments (such as the European Structural and Investment Funds or the European Investment Bank) and/or innovative financing solutions (e.g.: pre-commercial procurement; public-private partnerships);
- the preparation of legal and financial agreements, including site, governance, internal rules, financing of the new research infrastructures. These are deliverables that should be finalised before the end of the project (e.g.: through a Memorandum of Understanding; a 'signature-ready' document for the setting-up and the actual implementation of the research infrastructure);
- the establishment of plans for logistics and human resources management, in relation to the construction/integration and future operation, including RI service provision as well as for an efficient data curation and preservation and for the provision of access to data collected or produced by the future infrastructure, in line with the FAIR principles;
- the technical challenges concerning the joint development, transfer of knowledge and implementation of key RI technologies and the completion of the final technical design of the infrastructure;
- the development of plans for the provision of RI services to identified scientific user communities;
- the relevance of the RI for science and society, including its socio-economic impacts at local/regional level and links with the smart specialisation strategies at regional level.
- Environmental (including climate-related) impacts as well as the optimisation of resource and energy use should be integrated in the Preparatory phase of new research infrastructures.
- Proposals should explain any synergies and complementarities with previous or current EU grants.

Part B overview

30 pages limit

Excellence

- 1.1 Objectives (2 pages)
- 1.2 Coordination and/or support measures and methodology (6 pages)

Impact

- 2.1 Project's pathways towards impact (4 pages)
- 2.2 Measures to maximise impact - Dissemination, exploitation and communication (5 pages including 2.3)
- 2.3 Summary

Quality and efficiency of the implementation

- 3.1 Work plan and resources (10 pages including tables)
- 3.2 Capacity of participants and consortium as a whole (3 pages)

Tables for 3.1

WPs

- **WP1 Coordination and Management**
 1. Management
 2. Coordination
- **WP2 Organization, Governance and Legal Aspects**
 1. ET Internal Organization
 2. Legal Framework
 3. Enlargement of the ET Consortium
 4. Political convergence
 5. Connection to other observatories and communities
- **WP3 Financial Architecture**
 1. Cost evaluation
 2. Cost Sharing
 3. In-kind Contributions
 4. Industrial returns
 5. RI layout, Strategic issues and international networking

WPs

- **WP4 Site Selection**
 1. Site scientific evaluation
 2. Socio-economic impact
 3. Legal/Financial aspects of the RI implementation
 4. Mediation planning
- **WP5 Project Office**
 1. Technical Coordination of the Project
 2. Human resources qualification
 3. Strategic decisions making process
 4. Planning
 5. Preparation for Production
 6. Industrial Partnerships
 7. Risk Management
- **WP6 Technical Design**
 1. Infrastructure Technical Design
 2. Experiment Technical Design
 3. Scientific impact
 4. Open Data Access and Services

WPs

- **WP7 Transfer of Technology**
 1. Promotion of Innovative technologies
 2. Liaison with industries
 3. Intellectual Property
- **WP8 Computing and Data Access**
 1. Computing model
 2. Computing Resources
 3. T0 Data Center
 4. Data Preservation
- **WP9 Sustainable Development Strategy**
 1. Low Carbon footprint
 2. Liaison with Climate Change and Geoscience
 3. Landscape and Environmental impact
 4. Transportation
- **WP10 Education, Outreach and Citizen Engagement**
 1. School Education Program
 2. Dissemination and communication
 3. Mentoring and Training
 4. Diversity and Inclusion
 5. Early Career Scientists

Coordinators

Work Package	Coordinators	Institutions/ Countries
WP1 Coordination and Management	M. Martinez M. Balza	Spain
WP2 Organization, Governance and Legal Aspects	F. Ferroni J. van den Brand	Italy Netherlands
WP3 Financial Architecture	A. Sequi T. Berghöfer	Italy Germany

Coordinators

Work Package	Coordinators	Institutions/ Countries
WP4 Site Selection	M. Carpinelli F. Linde	Italy Netherlands
WP5 Project Office	A. Freise R. Flaminio [R. Saban]	Netherlands France
WP6 Technical Design	M. Punturo H. Lueck [P. Chiggiato]	Italy Germany

Coordinators

Work Package	Coordinators	Institutions/ Countries
WP7 Transfer of Technology	M. Morandin R. van der Meer	Italy Netherlands
WP8 Computing and Data Access	S. Girona A. Stahl	Spain Germany
WP9 Sustainable Development Strategy	N. Arnaud S. Katsanevas	France EGO
WP10 Education, Outreach and Citizen Engagement	D. Rosinska M. Hendry	Poland UK

ESFRI recommendations 1/3

R1. It is recommended to assess the expected physics performance of the ET for different failure scenarios where the detector could not achieve designed performances and to develop mitigation plans. In the event that the funding does not proceed as planned or the cost of the detector increases, it might become necessary to set a priority in physics programme and to descope the detector. The collaboration should be prepared for such processes. **(WP6)**

R2. It is recommended to make sure that contributions by the industries are directly and visibly acknowledged, providing ET industry awards for example. It will be also useful to keep record of the impact made by the ET project in boosting the economy and improving society locally, in Europe and globally. **(WP 5, 7)**

R3. No detail is given about the difference between the released data and sub-threshold data, and about how this specific access to data will be organised and granted. This should be better elaborated to ensure a fair process, and if for instance some tools or data are kept inside the collaboration this should be explained. **(WP 6, 8)**

R4. If some data and/or tools are kept inside the Collaboration, clarification is needed on which ones, and the criteria on which the decision to open or not is taken should be spelled out. A summary of the expected liaison and collaboration with the current ESFRI projects and landmarks is desired. **(WP 6, 8)**

R5. E-NEEDS: Developments in ongoing projects such as ESCAPE regarding interoperability need to be assessed for adoption and reuse. **(WP8)**

ESFRI recommendations 2/3

R6. Certain computational tasks are characterized as “embarrassingly parallel” which is quite fortunate as it will allow for the exploitation of massively parallel computational infrastructures. *Other tasks, however, may impose different requirements that need to be catered for by specific architectures.* **(WP8)**

R7. A continuous process of risk analysis for the progress in the critical technological developments is recommended. **(WP5)**

R8. In order to ensure the follow-up measurements by the other facilities, in particular by the optical telescopes, some changes in their operation model might be required since they would need to interrupt the running observation programme. *Therefore, a management level consultation among the facilities is recommended, in addition to already well-established interactions among scientists.* **(WP2)**

R9. **My wording:** ESFRI supports the view of decommission 2G once ET is fully operational and recommends to network with other 3G as becoming available rather than with 2G+. **(WP 2)**

R10. The ESFRI recommends that a strong emphasis is placed on enlarging the circle of countries supporting ET both politically and financially. **(WP 2)**

ESFRI recommendations 3/3

R11. The ESFRI considers it imperative that the timeline for site selection is met. Regarding the process for site selection, the ESFRI strongly recommends that an appropriate mediation plan is also put in place and that updates are provided to the ESFRI on this process up until site selection. **(WP 4 & 2)**

R12. The ESFRI recommend that a mitigation plan is put in place if site selection cannot be completed by 2024. **[decided we do not mention in the WPs]**

R13. Much effort is still necessary to meet the required financial costs. The ESFRI recommend that extra effort is afforded to meet these targets and that regular progress updates are provided to the ESFRI. **(WP2 & 3).**

Final remark: Einstein Telescope is a very ambitious project, which has a keen interest from a growing research community. It will be a single-sited infrastructure that aims to establish a European Third-Generation Gravitational Wave Observatory and has a broad global GW scientific community behind it. However, some key requirements necessary for a project on the ESFRI roadmap are lacking. ***The focal point being the lack of clarity.***